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<110> Reed, John C.

<120> Novel Card Proteins Involved in Cell Death Regulation

<130> P-LJ 3650

<140> 09/388,221

<141> 1999-09-01

<160> 30

<170> PatentIn Ver. 2.0

<210> 1

<211> 4422

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(4422)

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala

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cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144

His Ser Arg Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

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Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

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Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg			
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tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288			
Ser Leu Cys Ala Gln Ala Glu Gly Ala Gly His Ser Pro Ser Phe			
85	90	95	
ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336			
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr			
100	105	110	
tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384			
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys			
115	120	125	
acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432			
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser			
130	135	140	
gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480			
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu			
145	150	155	160
cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc 528			
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala			
165	170	175	

ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc 576

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro

180

185

190

agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg 624

Ser Leu Ala Pro Arg Glu Glu Ala Pro Gly Thr Gln Trp Pro Leu

195

200

205

gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga 672

Asp Glu Thr Ser Gly Ile Tyr Tyr Glu Ile Arg Glu Arg Glu Arg

210

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220

gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg 720

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr

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230

235

240

ccc cca cag gcg cac acc agc cta cag ccc cac cac cac cca tgg gag 768

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His Pro Trp Glu

245

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cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag 816

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu

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gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac 864

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His

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280

285

ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg 912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca 960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct 1008
Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

gga att ggg aag tca aca ctg gcc agg cag gtg aag gaa gcc tgg ggg 1056
Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc 1104
Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc 1152
Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
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Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

agg cca gag cg_g ctg ctc ttc atc ctc gat ggt gta gat gag cca gga 1248
Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

tgg gtc ttg cag gag ccg agt tct gag ctc tgt ctg cac tgg agc cag 1296
Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

cca cag ccg gc_g gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata 1344
Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

ctt ccc gag gca tcc ttc ctg atc acg gct cg_g acc aca gct ctg cag 1392
Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

aac ctc att cct tct ttg gag cag gca cgt tgg gta gag gtc ctg ggg 1440
Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

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Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

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Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 ,510

ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act 1584
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

tgc ctg atg cag cag atg aag cggtt gaa aaa ctc aca ctg act tcc 1632
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 535 540

aag acc acc aca acc ctc tgt cta cat tac ctt gcc cag gct ctc caa 1680
Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln
545 550 555 560

gct cag cca ttg gga ccc cag ctc aga gac ctc tgc tct ctg gct gct 1728
Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
565 570 575

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Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt 1824
Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly
595 600 605

att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc 1872
Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
610 615 620

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625	630	635	640
aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg			1968
Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr			
645	650	655	
cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt			2016
Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg			
660	665	670	
ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac			2064
Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn			
675	680	685	
atc ttt cac tgc cgg ctg tct cag ggg agg aac ctg atg cag tgg gtc			2112
Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val			
690	695	700	
ccg tcc ctg cag ctg ctg cag cca cac tct ctg gag tcc ctc cac			2160
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His			
705	710	715	720
tgc ttg tac gag act cgg aac aaa acg ttc ctg aca caa gtg atg gcc			2208
Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala			
725	730	735	
cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta			2256

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag 2304
Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta 2352
Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc 2400
Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

tcc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt 2448
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805 810 815

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Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
820 825 830

aga cgc cct cgc tgc ctc ctg gag acc ctg cgg ttg gct ggc tgt ggc 2544
Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac 2592
Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn

850 855 860

cag acc ctg acc gag ctg gac ctg agc ttc aat gtg ctc acg gat gct 2640
Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala

865 870 875 880

gga gcc aaa cac ctt tgc cag aga ctg aga cag ccg agc tgc aag cta 2688
Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu

885 890 895

cag cga ctg cag ctg gtc agc tgt ggc ctc acg tct gac tgc tgc cag 2736
Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln

900 905 910

gac ctg gcc tct gtg ctt agt gcc agc ccc agc ctg aag gag cta gac 2784
Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp

915 920 925

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Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu

930 935 940

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Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln

945 950 955 960

aca act ctg agt gat gag atg agg cag gaa ctg agg gcc ctg gag cag 2928
Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln

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Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met			
980	985	990	
acc cct act gag ggc ctg gat acg gga gag atg agt aat agc aca tcc 3024			
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995	1000	1005	
tca ctc aag cgg cag aga ctc gga tca gag agg gcg gct tcc cat gtt 3072			
Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val			
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gct cag gct aat ctc aaa ctc ctg gac gtg agc aag atc ttc cca att 3120			
Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile			
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gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg gaa ctc 3168			
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Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr Lys Pro			
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Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val Ala Thr			
1075	1080	1085	

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1095

1100

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Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val Met Arg

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1110

1115

1120

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Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln Phe Leu

1125

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Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro Leu Leu

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1145

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gac atc aag gct gag cct gga gct gtg gaa gct gtg cac ctc cct cac 3504

Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu Pro His

1155

1160

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ttt gtg gct ctc caa ggg ggc cat gtg gac aca tcc ctg ttc caa atg 3552

Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe Gln Met

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1175

1180

gcc cac ttt aaa gag gag ggg atg ctc ctg gag aag cca gcc agg gtg 3600

Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala Arg Val

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1195

1200

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Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val Thr Phe
1235 1240 1245

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His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala Ile Asp
1250 1255 1260

gat cta gaa atg aaa ttc cag ttt gtg cga atc cac aag cca ccc ccg 3840
Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro Pro Pro
1265 1270 1275 1280

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Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly Ser Gly
1285 1290 1295

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Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys Tyr Arg
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Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly His Leu
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Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu Thr Leu
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Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala Thr Thr
1345 1350 1355 1360

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Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp Ala Pro
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Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile Ala Arg
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gtg aca tcg gtg gag gtt gtc ttg gac aaa ctg cat gga cag gtg ctg 4224
Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln Val Leu
1395 1400 1405

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Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg Pro Ser
1410 1415 1420

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Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys
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Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile
1445 1450 1455

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Ser

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<212> PRT

<213> Homo sapiens

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His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly

340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu

500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr

515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser

530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln

545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala

565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg

580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu

610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu

625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg

660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn

675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

690 695 700

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala

725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu

740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln

755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val

770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu

785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln

945 950 955 960

Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln

965 970 975

Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met

980 985 990

Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser

995 1000 1005

Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val

1010 1015 1020

Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile

1025 1030 1035 1040

Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val Glu Leu

1045 1050 1055

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1060 1065 1070

Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val Ala Thr

1075 1080 1085

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Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val Met Arg
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Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln Phe Leu
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Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro Leu Leu
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Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu Pro His
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Phe Val Ala Leu Gln Gly His Val Asp Thr Ser Leu Phe Gln Met
1170 1175 1180

Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala Arg Val
1185 1190 1195 1200

Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro Leu Gly
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Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro Val Thr
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Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val Thr Phe
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His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala Ile Asp

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Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro Pro Pro
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Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly Ser Gly
1285 1290 1295

Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys Tyr Arg
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Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly His Leu
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Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu Thr Leu
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Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala Thr Thr
1345 • 1350 1355 1360

Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp Ala Pro
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Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile Ala Arg
1380 1385 1390

Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln Val Leu
1395 1400 1405

Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg Pro Ser

1410 1415 1420

Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys

1425 1430 1435 1440

Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile

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aag aag gag gag ctg aag gag ttc cag ctt ctg ctc gcc aat aaa gcg 96

Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala

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25

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cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35

40

45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

50

55

60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65

70

75

80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85

90

95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100

105

110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys

115

120

125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc 528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc 576
Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg 624
Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga 672
Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg 720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

ccc cca cag gcg cac acc agc cta cag ccc cac cac ccc tgg gag 768
Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag 816
Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac 864
Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
275 280 285

ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg 912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca 960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct 1008
Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

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Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc 1104
Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

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Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
370 375 380

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Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

agg cca gag cgg ctg ctc ttc atc ctc gat ggt gta gat gag cca gga 1248
Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

tgg gtc ttg cag gag ccg agt tct gag ctc tgt ctg cac tgg agc cag 1296
Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

cca cag ccg gcg gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata 1344
Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

ctt ccc gag gca tcc ttc ctg atc acg gct cgg acc aca gct ctg cag 1392
Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

aac ctc att cct tct ttg gag cag gca cgt tgg gta gag gtc ctg ggg 1440

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly			
465	470	475	480
ttc tct gag tcc agc agg aag gaa tat ttc tac aga tat ttc aca gat	1488		
Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp			
485	490	495	
gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag	1536		
Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu			
500	505	510	
ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act	1584		
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr			
515	520	525	
tgc ctg atg cag cag atg aag cg ^g aag gaa aaa ctc aca ctg act tcc	1632		
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser			
530	535	540	
aag acc acc aca acc ctc tgt cta cat tac ctt gcc cag gct ctc caa	1680		
Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln			
545	550	555	560
gct cag cca ttg gga ccc cag ctc aga gac ctc tgc tct ctg gct gct	1728		
Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala			
565	570	575	
gag ggc atc tgg caa aaa aag acc ctt ttc agt cca gat gac ctc agg	1776		

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg

580

585

590

aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt 1824

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595

600

605

att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc 1872

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu

610

615

620

tgt ttc caa gag ttc ttt gca gca atg tcc tat gtc ttg gag gat gag 1920

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu

625

630

635

640

aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg 1968

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645

650

655

cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt 2016

Leu Glu Ala Tyr Gly Ile His Leu Phe Gly Ala Ser Thr Thr Arg

660

665

670

ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac 2064

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn

675

680

685

atc ttt cac tgc cgg ctg tct cag ggg agg aac ctg atg cag tgg gtc 2112

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

690	695	700	
ccg tcc ctg cag ctg ctg cag cca cac tct ctg gag tcc ctc cac 2160			
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His			
705	710	715	720
tgc ttg tac gag act cg ^g aac aaa acg ttc ctg aca caa gtg atg gcc 2208			
Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala			
725	730	735	
cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta 2256			
His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu			
740	745	750	
gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag 2304			
Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln			
755	760	765	
ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta 2352			
Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val			
770	775	780	
gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc 2400			
Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu			
785	790	795	800
ttc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt 2448			
Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser			

805	810	815	
gga aac tcg ctg agc cac tct gca gtg aag agt ctt tgt aag acc ctg 2496			
Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu			
820	825	830	
aga cgc cct cgc tgc ctc ctg gag acc ctg cggttg gct ggc tgt ggc 2544			
Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly			
835	840	845	
ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac 2592			
Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn			
850	855	860	
cag acc ctg acc gag ctg gac ctg agc ttc aat gtg ctc acg gat gct 2640			
Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala			
865	870	875	880
gga gcc aaa cac ctt tgc cag aga ctg aga cag ccg agc tgc aag cta 2688			
Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu			
885	890	895	
cag cga ctg cag ctg gtc agc tgt ggc ctc acg tct gac tgc tgc cag 2736			
Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln			
900	905	910	
gac ctg gcc tct gtg ctt agt gcc agc ccc agc ctg aag gag cta gac 2784			
Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp			
915	920	925	

ctg cag cag aac aac ctg gat gac gtt ggc gtg cga ctg ctc tgt gag 2832
Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

ggg ctc agg cat cct gcc tgc aaa ctc ata cgc ctg ggg aaa cca agt 2880
Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser
945 950 955 960

gtg atg acc cct act gag ggc ctg gat acg gga gag atg agt aat agc 2928
Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

aca tcc tca ctc aag cgg cag aga ctc gga tca gag agg gcg gct tcc 2976
Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

cat gtt gct cag gct aat ctc aaa ctc ctg gac gtg agc aag atc ttc 3024
His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

cca att gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg 3072
Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
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gaa ctc ttg tgc gtg cct tct cct gcc tct caa ggg gac ctg cat acg 3120
Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr
1025 1030 1035 1040

aag cct ttg ggg act gac gat gac ttc tgg ggc ccc acg ggg cct gtg 3168
Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val
1045 1050 1055

gct act gag gta gtt gac aaa gaa aag aac ttg tac cga gtt cac ttc 3216
Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe
1060 1065 1070

cct gta gct ggc tcc tac cgc tgg ccc aac acg ggt ctc tgc ttt gtg 3264
Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val
1075 1080 1085

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Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln
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Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

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Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe
1140 1145 1150

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Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala

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1160

1165

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Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro

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1175

1180

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Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro

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1195

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Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val

1205

1210

1215

acc ttc cac ctc tac ctg atc cca agt gac tgc tcc att cgg aag gaa 3696

Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu

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1225

1230

ctg gag ctc tgc tat cga agc cct gga gaa gac cag ctg ttc tcg gag 3744

Leu Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu

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1245

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Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp

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1255

1260

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Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp
1265 1270 1275 1280

ctc atg cct gca act act ctg atc cct cca gcc cgcc ata gcc gta cct 3888
Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro
1285 1290 1295

tca cct ctg gat gcc ccg cag ttg ctg cac ttt gtg gac cag tat cga 3936
Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg
1300 1305 1310

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Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys
1315 1320 1325

ctg cat gga cag gtg ctg agc cag gag cag tac gag agg gtg ctg gct 4032
Leu His Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala
1330 1335 1340

gag aac acg agg ccc agc cag atg cgg aag ctg ttc agc ttg agc cag 4080
Glu Asn Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln
1345 1350 1355 1360

tcc tgg gac cgg aag tgc aaa gat gga ctc tac caa gcc ctg aag gag 4128
Ser Trp Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu
1365 1370 1375

acc cat cct cac ctc att atg gaa ctc tgg gag aag ggc agc aaa aag 4176

Thr His Pro His Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys Lys

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1385

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4200

Gly Leu Leu Pro Leu Ser Ser

1395

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1

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala

20

25

30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35

40

45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

50

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60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65

70

75

80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys

115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu

145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala

165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro

180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu

195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg

210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr

225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu

245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu

260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His

275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val

290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro

305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala

325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly

340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser

355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile

370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser

530 535 540

Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln
545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly
595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu
625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr
645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

690 695 700

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala

725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu

740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln

755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val

770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu

785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser

805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu

820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly

835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser
945 950 955 960

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe

995

1000

1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val

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1015

1020

Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr

1025

1030

1035

1040

Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val

1045

1050

1055

Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe

1060

1065

1070

Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val

1075

1080

1085

Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln

1090

1095

1100

Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro

1110

1115

1120

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu

1125

1130

1135

Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe

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Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala
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Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro
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Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro
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Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val
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Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu
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Leu Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu
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Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp
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Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp
1265 1270 1275 1280

Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro
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Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg

1300 1305 1310

Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys

1315 1320 1325

Leu His Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala

1330 1335 1340

Glu Asn Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln

1345 1350 1355 1360

Ser Trp Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
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cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc 528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc 576
Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg 624
Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga 672

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg 720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

ccc cca cag gcg cac acc agc cta cag ccc cac cac cac cca tgg gag 768
Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag 816
Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac 864
Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
275 280 285

ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg 912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca 960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct 1008

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala

325

330

335

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340

345

350

aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc 1104

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser

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tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc 1152

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile

370

375

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Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser

385

390

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agg cca gag cggtt ctg ctc atc ctc gat ggt gta gat gag cca gga 1248

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Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln

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cca cag ccg gcg gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata 1344

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile

435 440 445

ctt ccc gag gca tcc ttc ctg atc acg gct cg^g acc aca gct ctg cag 1392
Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln

450 455 460

aac ctc att cct tct ttg gag cag gca cgt tgg gta gag gtc ctg ggg 1440
Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly

465 470 475 480

t^c tct gag tcc agc agg aag gaa tat ttc tac aga tat ttc aca gat 1488
Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp

485 490 495

gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag 1536
Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu

500 505 510

ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act 1584
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr

515 520 525

tgc ctg atg cag cag atg aag cgg aag gaa aaa ctc aca ctg act tcc 1632
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser

530 535 540

aag acc acc aca acc ctc tgt cta cat tac ctt gcc cag gct ctc caa 1680
Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln

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gct cag cca ttg gga ccc cag ctc aga gac ctc tgc tct ctg gct gct				1728
Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala				
565	570	575		
gag ggc atc tgg caa aaa aag acc ctt ttc agt cca gat gac ctc agg				1776
Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg				
580	585	590		
aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt				1824
Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly				
595	600	605		
att ct't caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc				1872
Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu				
610	615	620		
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Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu				
625	630	635	640	
aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg				1968
Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr				
645	650	655		
cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt				2016
Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg				
660	665	670		

ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac 2064
Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
675 680 685

atc ttt cac tgc cgg ctg tct cag ggg agg aac ctg atg cag tgg gtc 2112
Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
690 695 700

ccg tcc ctg cag ctg ctg cag cca cac tct ctg gag tcc ctc cac 2160
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

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Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta 2256
His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag 2304
Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

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Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc 2400
Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

ttc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt 2448
Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
805 810 815

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Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
820 825 830

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Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac 2592
Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
850 855 860

cag acc ctg acc gag ctg gac ctg agc ttc aat gtg ctc acg gat gct 2640
Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
865 870 875 880

gga gcc aaa cac ctt tgc cag aga ctg aga cag ccg agc tgc aag cta 2688
Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
885 890 895

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Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

gac ctg gcc tct gtg ctt agt gcc agc ccc agc ctg aag gag cta gac 2784
Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

ctg cag cag aac aac ctg gat gac gtt ggc gtg cga ctg ctc tgt gag 2832
Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

ggg ctc agg cat cct gcc tgc aaa ctc ata cgc ctg ggg aaa cca agt 2880
Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser
945 950 955 960

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Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

aca tcc tca ctc aag cgg cag aga ctc gga tca gag agg gcg gct tcc 2976
Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

cat gtt gct cag gct aat ctc aaa ctc ctg gac gtg agc aag atc ttc 3024
His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

cca att gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg 3072
Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
1010 1015 1020

gaa ctc ttg tgc gtg cct tct cct gcc tct caa ggg gac ctg cat acg 3120
Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr
1025 1030 1035 1040

aag cct ttg ggg act gac gat gac ttc tgg ggc ccc acg ggg cct gtg 3168
Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val
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gct act gag gta gtt gac aaa gaa aag aac ttg tac cga gtt cac ttc 3216
Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe
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Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val
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1105 1110 1115 1120

ctg ctg gac atc aag gct gag cct gga gct gtg gaa gct gtg cac ctc 3408

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

cct cac ttt gtg gct ctc caa ggg ggc cat gtg gac aca tcc ctg ttc 3456
Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe
1140 1145 1150

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Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala
1155 1160 1165

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Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro
1170 1175 1180

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gtc acc tct gtg gtg ttg ctt tac cac cgc gtc cat cct gag gaa gtc 3648
Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val
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acc ttc cac ctc tac ctg atc cca agt gac tgc tcc att cgg aag gcc 3696
Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala
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1245

ccc ccg ctg acc cca ctt tat atg ggc tgt cgt tac act gtg tct ggg 3792

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tct ggt tca ggg atg ctg gaa ata ctc ccc aag gaa ctg gag ctc tgc 3840

Ser Gly Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys

1265 1270 1275 1280

tat cga agc cct gga gaa gac cag ctg ttc tcg gag ttc tac gtt ggc 3888

Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly

1285

1290

1295

cac ttg gga tca ggg atc agg ctg caa gtg aaa gac aag aaa gat gag 3936

His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu

1300

1305

1310

act ctg gtg tgg gag gcc ttg gtg aaa cca gga gat ctc atg cct gca 3984

Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala

1315

1320

1325

act act ctg atc cct cca gcc cgcc ata gcc gta cct tca cct ctg gat 4032

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1330

1335

1340

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Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile

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Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln			
1365	1370	1375	
gtg ctg agc cag gag cag tac gag agg gtg ctg gct gag aac acg agg 4176			
Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg			
1380	1385	1390	
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His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys

115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile

435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 535 540

Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln
545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595

600

605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu

610

615

620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu

625

630

635

640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645

650

655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg

660

665

670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn

675

680

685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

690

695

700

Pro Ser Leu Gln Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

705

710

715

720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala

725

730

735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu

740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln

900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp

915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu

930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser

945 950 955 960

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser

965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser

980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe

995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val

1010 1015 1020

Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr

1025 1030 1035 1040

Lys Pro Leu Gly Thr Asp Asp Phe Trp Gly Pro Thr Gly Pro Val

1045 1050 1055

Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe
1060 1065 1070

Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val
1075 1080 1085

Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln
1090 1095 1100

Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro
1105 1110 1115 1120

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe
1140 1145 1150

Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala
1155 1160 1165

Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro
1170 1175 1180

Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro
1185 1190 1195 1200

Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val

1205

1210

1215

Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala

1220

1225

1230

Ile Asp Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro

1235

1240

1245

Pro Pro Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly

1250

1255

1260

Ser Gly Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys

1265

1270

1275

1280

Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly

1285

1290

1295

His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu

1300

1305

1310

Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala

1315

1320

1325

Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp

1330

1335

1340

Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile

1345 1350 1355 1360

Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln

1365 1370 1375

Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg

1380 1385 1390

Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg

1395 1400 1405

Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His

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Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro

1425 1430 1435 1440

Leu Ser Ser

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<221> CDS

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15

gtc aac tat ctg ggg ggg aca ttc cca gga gac att tgc tca gaa gag 96

Val Asn Tyr Leu Gly Gly Thr Phe Pro Gly Asp Ile Cys Ser Glu Glu

20

25

30

aat caa ata gtt tcc tct tat gct tct aaa gtc tgt ttt gag atc gaa 144

Asn Gln Ile Val Ser Ser Tyr Ala Ser Lys Val Cys Phe Glu Ile Glu

35

40

45

gaa gat tat aaa aat cgt cag ttt ctg ggg cct gaa gga aat gtg gat 192

Glu Asp Tyr Lys Asn Arg Gln Phe Leu Gly Pro Glu Gly Asn Val Asp

50

55

60

gtt gag ttg att gat aag agc aca aac aga tac agc gtt tgg ttc ccc 240

Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro

65

70

75

80

act gct ggc tgg tat ctg tgg tca gcc aca ggc ctc ggc ttc ctg gta 288

Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val

85

90

95

agg gat gag gtc aca gtg acg att gcg ttt ggt tcc tgg agt cag cac 336

Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His

100

105

110

ctg gcc ctg gac ctg cag cac cat gaa cag tgg ctg gtg ggc ggc ccc 384
Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro
115 120 125

ttg ttt gat gtc act gca gag cca gag gag gct gtc gcc gaa atc cac 432
Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His
130 135 140

ctc ccc cac ttc atc tcc ctc caa ggt gag gtg gac gtc tcc tgg ttt 480
Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe
145 150 155 160

ctc gtt gcc cat ttt aag aat gaa ggg atg gtc ctg gag cat cca gcc 528
Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala
165 170 175

cgg gtg gag cct ttc tat gct gtc ctg gaa agc ccc agc ttc tct ctg 576
Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu
180 185 190

atg ggc atc ctg ctg cgg atc gcc agt ggg act cgc ctc tcc atc ccc 624
Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro
195 200 205

atc act tcc aac aca ttg atc tat tat cac ccc cac ccc gaa gat att 672
Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile
210 215 220

aag ttc cac ttg tac ctt gtc ccc agc gac gcc ttg cta aca aag gcg 720
Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala
225 230 235 240

ata gat gat gag gaa gat cgc ttc cat ggt gtg cgc ctg cag act tcg 768
Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser
245 250 255

ccc cca atg gaa ccc ctg aac ttt ggt tcc agt tat att gtg tct aat 816
Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn
260 265 270

tct gct aac ctg aaa gta atg ccc aag gag ttg aaa ttg tcc tac agg 864
Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg
275 280 285

agc cct gga gaa att cag cac ttc tca aaa ttc tat gct ggg cag atg 912
Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met
290 295 300

aag gaa ccc att caa ctt gag att act gaa aaa aga cat ggg act ttg 960
Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu
305 310 315 320

gtg tgg gat act gag gtg aag cca gtg gat ctc cag ctt gta gct gca 1008
Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala
325 330 335

tca gcc cct cct ttc tca ggt gca gcc ttt gtg aag gag aac cac 1056
Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His
340 345 350

cgg caa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat gat 1104
Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp
355 360 365

ctc cag gac aat gag gtt ctt act gag aat gag aag gag ctg gtg gag 1152
Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu
370 375 380

cag gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg gtg 1200
Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val
385 390 395 400

gag aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att agt 1248
Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser
405 410 415

gaa agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg taa 1296
Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu
420 425 430

aatgagtcag ttaggtagtc tggaaagagag aatccagcgt tctcattgga aatggataaa 1356
cagaaaatgtg atcattgatt tcagtgttca agacagaaga agactggta acatcttatca 1416

cacaggctt caggacagac ttgtAACCTG gcatgtacct attgactgtatccatgc 1476

ttttcctcaa g 1487

<210> 8

<211> 431

<212> PRT

<213> Homo sapiens

<400> 8

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1 5 10 15

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20 25 30

Asn Gln Ile Val Ser Ser Tyr Ala Ser Lys Val Cys Phe Glu Ile Glu

35 40 45

Glu Asp Tyr Lys Asn Arg Gln Phe Leu Gly Pro Glu Gly Asn Val Asp

50 55 60

Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro

65 70 75 80

Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val

85 90 95

Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His

100 105 110

Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro

115 120 125

Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His

130 135 140

Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe

145 150 155 160

Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala

165 170 175

Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu

180 185 190

Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro

195 200 205

Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile

210 215 220

Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala

225 230 235 240

Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser

245 250 255

Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn

260 265 270

Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg

275 280 285

Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met

290 295 300

Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu

305 310 315 320

Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala

325 330 335

Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His

340 345 350

Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp

355 360 365

Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu

370 375 380

Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val

385 390 395 400

Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser
405 410 415

Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu
420 425 430

<210> 9

<211> 4556

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)..(4365)

<220>

<223> Description of Artificial Sequence: Synthetic
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1 5 10 15

aag aag gag gag ctg aag gag ttc cag ctt ctg ctc gcc aat aaa gcg 96
Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc 528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc 576
Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg 624
Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga 672
Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg 720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

ccc cca cag gcg cac acc agc cta cag ccc cac cac cac cca tgg gag 768
Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag 816
Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac 864
Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
275 280 285

ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg 912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca 960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct 1008
Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

gga att ggg aag tca aca ctg gcc agg cag gtg aag gaa gcc tgg ggg 1056
Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc 1104
Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc 1152

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile				
370	375	380		
gga aaa gat ggg aca gcc act ccg gct ccc att aga cag atc ctg tct				1200
Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser				
385	390	395	400	
agg cca gag cg ^g ctg ctc ttc atc ctc gat ggt gta gat gag cca gga				1248
Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly				
405	410	415		
tgg gtc ttg cag gag ccg agt tct gag ctc tgt ctg cac tgg agc cag				1296
Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln				
420	425	430		
cca cag ccg gc ^g gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata				1344
Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile				
435	440	445		
ctt ccc gag gca tcc ttc ctg atc acg gct cg ^g acc aca gct ctg cag				1392
Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln				
450	455	460		
aac ctc att cct tct ttg gag cag gca cgt tgg gta gag gtc ctg ggg				1440
Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly				
465	470	475	480	
ttc tct gag tcc agc agg aag gaa tat ttc tac aga tat ttc aca gat				1488

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp

485

490

495

gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag 1536

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu

500

505

510

ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act 1584

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr

515

520

525

tgc ctg atg cag cag atg aag cg^g aag gaa aaa ctc aca ctg act tcc 1632

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser

530

535

540

aag acc acc aca acc ctc tgt cta cat tac ctt gcc cag gct ctc caa 1680

Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln

545

550

555

560

gct cag cca ttg gga ccc cag ctc aga gac ctc tgc tct ctg gct gct 1728

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala

565

570

575

gag ggc atc tgg caa aaa aag acc ctt ttc agt cca gat gac ctc agg 1776

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg

580

585

590

aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt 1824

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595 600 605

att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc 1872
Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu

610 615 620

tgt ttc caa gag ttc ttt gca gca atg tcc tat gtc ttg gag gat gag 1920
Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu

625 630 635 640

aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg 1968
Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645 650 655

cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt 2016
Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg

660 665 670

ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac 2064
Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn

675 680 685

atc ttt cac tgc cgg ctg tct cag ggg agg aac ctg atg cag tgg gtc 2112
Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

690 695 700

ccg tcc ctg cag ctg ctg cag cca cac tct ctg gag tcc ctc cac 2160
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

705 710 715 720
tgc ttg tac gag act cg^g aac aaa acg ttc ctg aca caa gtg atg gcc 2208
Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta 2256
His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag 2304
Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta 2352
Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc 2400
Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

ttc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt 2448
Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
805 810 815

gga aac tcg ctg agc cac tct gca gtg aag agt ctt tgt aag acc ctg 2496
Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
820 825 830

aga cgc cct cgc tgc ctc ctg gag acc ctg cggttg gct ggc tgt ggc 2544
Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac 2592
Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
850 855 860

cag acc ctg acc gag ctg gac ctg agc ttc aat gtgtgc acg gat gct 2640
Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
865 870 875 880

gga gcc aaa cac ctt tgc cag aga ctg aga cag ccg agc tgc aag cta 2688
Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
885 890 895

cag cga ctg cag ctg gtc agc tgt ggc ctc acg tct gac tgc tgc cag 2736
Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

gac ctg gcc tct gtgtt agt gcc agc ccc agc ctg aag gag cta gac 2784
Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

ctg cag cag aac aac ctg gat gac gtt ggc gtgc agc ctg ctc tgt gag 2832
Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

ggg ctc agg cat cct gcc tgc aaa ctc ata cgc ctg ggg ctg gac cag 2880
Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln
945 950 955 960

aca act ctg agt gat gag atg agg cag gaa ctg agg gcc ctg gag cag 2928
Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
965 970 975

gag aaa cct cag ctg ctc atc ttc agc aga cg^g aaa cca agt gtg atg 2976
Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met
980 985 990

acc cct act gag ggc ctg gat acg gga gag atg agt aat agc aca tcc 3024
Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser
995 1000 1005

tca ctc aag cg^g cag aga ctc gga tca gag agg gcg gct tcc cat gtt 3072
Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val
1010 1015 1020

gct cag gct aat ctc aaa ctc ctg gac gtg agc aag atc ttc cca att 3120
Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile
1025 1030 1035 1040

gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg gaa ctc 3168
Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val Glu Leu
1045 1050 1055

ttg tgc gtg cct tct cct gcc tct caa ggg gac ctg cat acg aag cct 3216
Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr Lys Pro
1060 1065 1070

ttg ggg act gac gat gac ttt ctg ggg cct gaa gga aat gtg gat gtt 3264
Leu Gly Thr Asp Asp Asp Phe Leu Gly Pro Glu Gly Asn Val Asp Val
1075 1080 1085

gag ttg att gat aag agc aca aac aga tac agc gtt tgg ttc ccc act 3312
Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro Thr
1090 1095 1100

gct ggc tgg tat ctg tgg tca gcc aca ggc ctc ggc ttc ctg gta agg 3360
Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val Arg
1105 1110 1115 1120

gat gag gtc aca gtg acg att gcg ttt ggt tcc tgg agt cag cac ctg 3408
Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His Leu
1125 1130 1135

gcc ctg gac ctg cag cac cat gaa cag tgg ctg gtg ggc ggc ccc ttg 3456
Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro Leu
1140 1145 1150

ttt gat gtc act gca gag cca gag gag gct gtc gcc gaa atc cac ctc 3504
Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His Leu
1155 1160 1165

ccc cac ttc atc tcc ctc caa ggt gag gtg gac gtc tcc tgg ttt ctc			3552
Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe Leu			
1170	1175	1180	
gtt gcc cat ttt aag aat gaa ggg atg gtc ctg gag cat cca gcc cg			3600
Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala Arg			
1185	1190	1195	1200
gtg gag cct ttc tat gct gtc ctg gaa agc ccc agc ttc tct ctg atg			3648
Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu Met			
1205	1210	1215	
ggc atc ctg ctg cg gg atc ggc act cgc ctc tcc atc ccc atc			3696
Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro Ile			
1220	1225	1230	
act tcc aac aca ttg atc tat tat cac ccc cac ccc gaa gat att aag			3744
Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile Lys			
1235	1240	1245	
ttc cac ttg tac ctt gtc ccc agc gac gcc ttg cta aca aag gcg ata			3792
Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala Ile			
1250	1255	1260	
gat gat gag gaa gat cgc ttc cat ggt gtg cgc ctg cag act tcg ccc			3840
Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser Pro			
1265	1270	1275	1280
cca atg gaa ccc ctg aac ttt ggt tcc agt tat att gtg tct aat tct			3888

Pro	Met	Glu	Pro	Leu	Asn	Phe	Gly	Ser	Ser	Tyr	Ile	Val	Ser	Asn	Ser				
1285							1290							1295					
gct aac ctg aaa gta atg ccc aag gag ttg aaa ttg tcc tac agg agc 3936																			
Ala	Asn	Leu	Lys	Val	Met	Pro	Lys	Glu	Leu	Lys	Leu	Ser	Tyr	Arg	Ser				
1300							1305							1310					
cct gga gaa att cag cac ttc tca aaa ttc tat gct ggg cag atg aag 3984																			
Pro	Gly	Glu	Ile	Gln	His	Phe	Ser	Lys	Phe	Tyr	Ala	Gly	Gln	Met	Lys				
1315							1320							1325					
gaa ccc att caa ctt gag att act gaa aaa aga cat ggg act ttg gtg 4032																			
Glu	Pro	Ile	Gln	Leu	Glu	Ile	Thr	Glu	Lys	Arg	His	Gly	Thr	Leu	Val				
1330							1335							1340					
tgg gat act gag gtg aag cca gtg gat ctc cag ctt gta gct gca tca 4080																			
Trp	Asp	Thr	Glu	Val	Lys	Pro	Val	Asp	Leu	Gln	Leu	Val	Ala	Ala	Ser				
1345							1350							1355			1360		
gcc cct cct ttc tca ggt gca gcc ttt gtg aag gag aac cac cg 4128																			
Ala	Pro	Pro	Pro	Phe	Ser	Gly	Ala	Ala	Phe	Val	Lys	Glu	Asn	His	Arg				
1365							1370							1375					
caa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat gat ctc 4176																			
Gln	Leu	Gln	Ala	Arg	Met	Gly	Asp	Leu	Lys	Gly	Val	Leu	Asp	Asp	Leu				
1380							1385							1390					
cag gac aat gag gtt ctt act gag aat gag aag gag ctg gtg gag cag 4224																			

Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu Gln

1395 1400 1405

gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg gtg gag 4272

Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val Glu

1410 1415 1420

aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att agt gaa 4320

Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser Glu

1425 1430 1435 1440

agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg taa 4365

Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu

1445 1450

aatgagtcag ttaggtagtc tggaagagag aatccagcgt tctcattgga aatggataaa 4425

cagaaaatgtg atcattgatt tcagtgttca agacagaaga agactggta acatctatca 4485

cacaggctt caggacagac ttgtAACCTG gcatgtacct attgactgt aTCCTCATGCA 4545

ttttcctcaa g 4556

<210> 10

<211> 1454

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Construct

<400> 10

Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu

1

5

10

15

Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala

20

25

30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35

40

45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

50

55

60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65

70

75

80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85

90

95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100

105

110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys

115

120

125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130

135

140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val

290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln

450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly

465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp

485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu

500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr

515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser

530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln

545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala

565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg

580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu
625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr
645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
690 695 700

Pro Ser Leu Gln Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln

755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val

770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu

785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser

805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu

820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly

835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn

850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala

865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu

885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln

900 905 910
Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925
Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940
Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln
945 950 955 960
Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
965 970 975
Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met
980 985 990
Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser
995 1000 1005
Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val
1010 1015 1020
Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile
1025 1030 1035 1040
Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val Glu Leu
1045 1050 1055

Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr Lys Pro

1060 1065 1070

Leu Gly Thr Asp Asp Asp Phe Leu Gly Pro Glu Gly Asn Val Asp Val

1075 1080 1085

Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro Thr

1090 1095 1100

Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val Arg

1105 1110 1115 1120

Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His Leu

1125 1130 1135

Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro Leu

1140 1145 1150

Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His Leu

1155 1160 1165

Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe Leu

1170 1175 1180

Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala Arg

1185 1190 1195 1200

Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu Met

1205 1210 1215

Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro Ile
1220 1225 1230

Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile Lys
1235 1240 1245

Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala Ile
1250 1255 1260

Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser Pro
1265 1270 1275 1280

Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn Ser
1285 1290 1295

Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg Ser
1300 1305 1310

Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met Lys
1315 1320 1325

Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu Val
1330 1335 1340

Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala Ser
1345 1350 1355 1360

Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His Arg

1365 1370 1375

Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp Leu

1380 1385 1390

Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu Gln

1395 1400 1405

Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val Glu

1410 1415 1420

Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser Glu

1425 1430 1435 1440

Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu

1445 1450

<210> 11

<211> 4466

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (1)..(4272)

<220>

<223> Description of Artificial Sequence: Synthetic
Construct

<400> 11

atg gct ggc gga gcc tgg ggc cgc ctg gcc tgt tac ttg gag ttc ctg 48
Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu
1 5 10 15

aag aag gag gag ctg aag gag ttc cag ctt ctg ctc gcc aat aaa gcg 96
Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc 528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc 576
Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg 624
Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga 672
Asp Glu Thr Ser Gly Ile Tyr Tyr Glu Ile Arg Glu Arg Glu Arg
210 215 220

gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg 720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

ccc cca cag gcg cac acc agc cta cag ccc cac cac cca tgg gag 768
Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag 816
Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac 864
Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
275 280 285

ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg 912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca 960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct 1008
Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

gga att ggg aag tca aca ctg gcc agg cag gtg aag gaa gcc tgg ggg 1056
Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc 1104
Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc 1152
Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
370 375 380

gga aaa gat ggg aca gcc act ccg gct ccc att aga cag atc ctg tct 1200
Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

agg cca gag cgg ctg ctc ttc atc ctc gat ggt gta gat gag cca gga 1248
Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

tgg gtc ttg cag gag ccg agt tct gag ctc tgt ctg cac tgg agc cag 1296
Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

cca cag ccg gcg gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata 1344

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

ctt ccc gag gca tcc ttc ctg atc acg gct cggt acc aca gct ctg cag 1392
Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

aac ctc att cct tct ttg gag cag gca cgt tgg gta gag gtc ctg ggg 1440
Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

tcc tct gag tcc agc agg aag gaa tat ttc tac aga tat ttc aca gat 1488
Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag 1536
Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act 1584
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

tgc ctg atg cag cag atg aag cggt aag gaa aaa ctc aca ctg act tcc 1632
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 535 540

aag acc acc aca acc ctc tgt cta cat tac ctt gcc cag gct ctc caa 1680

Lys Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln

545 550 555 560

gct cag cca ttg gga ccc cag ctc aga gac ctc tgc tct ctg gct gct 1728

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala

565 570 575

gag ggc atc tgg caa aaa aag acc ctt ttc agt cca gat gac ctc agg 1776

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg

580 585 590

aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt 1824

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595 600 605

att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc 1872

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu

610 615 620

tgt ttc caa gag ttc ttt gca gca atg tcc tat gtc ttg gag gat gag 1920

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu

625 630 635 640

aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg 1968

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645 650 655

cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt 2016

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg

660 665 670
ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac 2064
Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
675 680 685

atc ttt cac tgc cgg ctg tct cag ggg agg aac aac ctg atg cag tgg gtc 2112
Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
690 695 700

ccg tcc ctg cag ctg ctg cag cca cac tct ctg gag tcc ctc cac 2160
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

tgc ttg tac gag act cg^g aac aaa acg ttc ctg aca caa gtg atg gcc 2208
Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta 2256
His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag 2304
Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta 2352
Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val

770 775 780

gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc 2400
Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu

785 790 795 800

ttc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt 2448
Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser

805 810 815

gga aac tcg ctg agc cac tct gca gtg aag agt ctt tgt aag acc ctg 2496
Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu

820 825 830

aga cgc cct cgc tgc ctc ctg gag acc ctg cgg ttg gct ggc tgt ggc 2544
Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly

835 840 845

ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac 2592
Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn

850 855 860

cag acc ctg acc gag ctg gac ctg agc ttc aat gtg ctc acg gat gct 2640
Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala

865 870 875 880

gga gcc aaa cac ctt tgc cag aga ctg aga cag ccg agc tgc aag cta 2688
Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu

885 890 895

cag cga ctg cag ctg gtc agc tgt ggc ctc acg tct gac tgc tgc cag 2736
Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln

900 905 910

gac ctg gcc tct gtg ctt agt gcc agc ccc agc ctg aag gag cta gac 2784
Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

ctg cag cag aac aac ctg gat gac gtt ggc gtg cga ctg ctc tgt gag 2832
Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

ggg ctc agg cat cct gcc tgc aaa ctc ata cgc ctg ggg aaa cca agt 2880
Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser
945 950 955 960

gtg atg acc cct act gag ggc ctg gat acg gga gag atg agt aat agc 2928
Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

aca tcc tca ctc aag cgg cag aga ctc gga tca gag agg gcg gct tcc 2976
Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

cat gtt gct cag gct aat ctc aaa ctc ctg gac gtg agc aag atc ttc 3024
His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

cca att gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg 3072
Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
1010 1015 1020

gaa ctc ttg tgc gtg cct tct cct gcc tct caa ggg gac ctg cat acg 3120
Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr
1025 1030 1035 1040

aag cct ttg ggg act gac gat gac ttt ctg ggg cct gaa gga aat gtg 3168
Lys Pro Leu Gly Thr Asp Asp Asp Phe Leu Gly Pro Glu Gly Asn Val
1045 1050 1055

gat gtt gag ttg att gat aag agc aca aac aga tac agc gtt tgg ttc 3216
Asp Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe
1060 1065 1070

ccc act gct ggc tgg tat ctg tgg tca gcc aca ggc ctc ggc ttc ctg 3264
Pro Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu
1075 1080 1085

gta agg gat gag gtc aca gtg acg att gcg ttt ggt tcc tgg agt cag 3312
Val Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln
1090 1095 1100

cac ctg gcc ctg gac ctg cag cac cat gaa cag tgg ctg gtg ggc ggc 3360
His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly
1105 1110 1115 1120

ccc ttg ttt gat gtc act gca gag cca gag gag gct gtc gcc gaa atc 3408
Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile
1125 1130 1135

cac ctc ccc cac ttc atc tcc ctc caa ggt gag gtg gac gtc tcc tgg 3456
His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp
1140 1145 1150

ttt ctc gtt gcc cat ttt aag aat gaa ggg atg gtc ctg gag cat cca 3504
Phe Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro
1155 1160 1165

gcc cg^g gtg gag cct ttc tat gct gtc ctg gaa agc ccc agc ttc tct 3552
Ala Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser
1170 1175 1180

ctg atg ggc atc ctg ctg cg^g atc gcc agt ggg act cg^c ctc tcc atc 3600
Leu Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile
1185 1190 1195 1200

ccc atc act tcc aac aca ttg atc tat tat cac ccc cac ccc gaa gat 3648
Pro Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp
1205 1210 1215

att aag ttc cac ttg tac ctt gtc ccc agc gac gcc ttg cta aca aag 3696
Ile Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys
1220 1225 1230

gcg ata gat gat gag gaa gat cgc ttc cat ggt gtg cgc ctg cag act 3744
Ala Ile Asp Asp Glu Glu Asp Arg Phe His Val Arg Leu Gln Thr
1235 1240 1245

tcg ccc cca atg gaa ccc ctg aac ttt ggt tcc agt tat att gtg tct 3792
Ser Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser
1250 1255 1260

aat tct gct aac ctg aaa gta atg ccc aag gag ttg aaa ttg tcc tac 3840
Asn Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr
1265 1270 1275 1280

agg agc cct gga gaa att cag cac ttc tca aaa ttc tat gct ggg cag 3888
Arg Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln
1285 1290 1295

atg aag gaa ccc att caa ctt gag att act gaa aaa aga cat ggg act 3936
Met Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr
1300 1305 1310

ttg gtg tgg gat act gag gtg aag cca gtg gat ctc cag ctt gta gct 3984
Leu Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala
1315 1320 1325

gca tca gcc cct cct ttc tca ggt gca gcc ttt gtg aag gag aac 4032
Ala Ser Ala Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn
1330 1335 1340

cac cggtt gaa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat 4080

His Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp

1345

1350

1355

1360

gat ctc cag gac aat gag gtt ctt act gag aat gag aag gag ctg gtg 4128

Asp Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val

1365

1370

1375

gag cag gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg 4176

Glu Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met

1380

1385

1390

gtg gag aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att 4224

Val Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile

1395

1400

1405

agt gaa agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg 4272

Ser Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu

1410

1415

1420

taaaatgagt cagtttagta gtctggaaga gagaatccag cgttctcatt ggaaatggat 4332

aaacagaaat gtgatcattt atttcagtgt tcaagacaga agaagactgg gtaacatcta 4392

tcacacaggc tttcaggaca gacttgtaac ctggcatgta cctattgact gtatcctcat 4452

gcattttcct caag

4466

<210> 12

<211> 1424

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Construct

<400> 12

Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu

1 5 10 15

Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala

20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys

115

120

125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130

135

140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu

145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala

165

170

175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro

180

185

190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu

195

200

205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg

210

215

220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr

225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu

245

250

255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu

260

265

270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His

275

280

285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val

290

295

300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro

305

310

315

320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala

325

330

335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly

340

345

350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser

355

360

365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile

370

375

380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser

385

390

395

400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly

405

410

415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln

420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln
545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg

580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu

610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu

625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg

660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn

675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

690 695 700

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala

725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser
945 950 955 960

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
1010 1015 1020

Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr

1025 1030 1035 1040

Lys Pro Leu Gly Thr Asp Asp Asp Phe Leu Gly Pro Glu Gly Asn Val

1045 1050 1055

Asp Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe

1060 1065 1070

Pro Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu

1075 1080 1085

Val Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln

1090 1095 1100

His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly

1110 1115 1120

Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile

1125 1130 1135

His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp

1140 1145 1150

Phe Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro

1155 1160 1165

Ala Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser

1170 1175 1180

Leu Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile
1185 1190 1195 1200

Pro Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp
1205 1210 1215

Ile Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys
1220 1225 1230

Ala Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr
1235 1240 1245

Ser Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser
1250 1255 1260

Asn Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr
1265 1270 1275 1280

Arg Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln
1285 1290 1295

Met Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr
1300 1305 1310

Leu Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala
1315 1320 1325

Ala Ser Ala Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn

1330 1335 1340

His Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp

1345 1350 1355 1360

Asp Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val

1365 1370 1375

Glu Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met

1380 1385 1390

Val Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile

1395 1400 1405

Ser Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu

1410 1415 1420

<210> 13

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ccgaattcac catggctggc ggagcctggg gc

32

<210> 14
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 14
ccgctcgagt caacagaggg ttgtggtggt cttg

34

<210> 15
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 15
cccgaaattcg aacctcgcat agtcatactg c

31

<210> 16
<211> 30
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 16

gtccccacaac agaattcaat ctcaacggtc

30

<210> 17

<211> 21

<212> DNA

<213> Homo sapiens

<400> 17

tgtgatgaga gaagcggtga c

21

<210> 18

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 18

ccgctcgagc aaagaagggt cagccaaagc

30

<210> 19

<211> 209

<212> PRT

<213> Homo sapiens

<400> 19

Ile Val Ile Leu Gln Gly Ala Ala Gly Ile Gly Lys Ser Ile Leu Ala

1

5

10

15

Arg Gln Val Lys Glu Ala Trp Gly Arg Gly Gln Leu Tyr Gly Asp Arg

20

25

30

Phe Gln His Val Phe Tyr Phe Ser Cys Arg Glu Leu Ala Gln Ser Lys

35

40

45

Val Val Ser Leu Ala Glu Leu Ile Gly Lys Asp Gly Thr Ala Thr Pro

50

55

60

Ala Pro Ile Arg Gln Ile Leu Ser Arg Pro Glu Arg Leu Leu Phe Ile

65

70

75

80

Leu Asp Gly Val Asp Glu Pro Gly Trp Val Leu Gln Glu Pro Ser Ser

85

90

95

Glu Leu Cys Leu His Trp Ser Gln Pro Gln Pro Ala Asp Ala Leu Leu

100

105

110

Gly Ser Leu Leu Gly Lys Thr Ile Leu Pro Glu Ala Ser Phe Leu Ile

115

120

125

Thr Ala Arg Thr Thr Ala Leu Gln Asn Leu Ile Pro Ser Leu Glu Gln

130

135

140

Ala Arg Trp Val Glu Val Leu Gly Phe Ser Glu Ser Ser Arg Lys Glu

145

150

155

160

Tyr Phe Tyr Arg Tyr Phe Thr Asp Glu Arg Gln Ala Ile Arg Ala Phe

165

170

175

Arg Leu Val Lys Ser Asn Lys Glu Leu Trp Ala Leu Cys Leu Val Pro

180

185

190

Trp Val Ser Trp Leu Ala Cys Thr Cys Leu Met Gln Gln Met Lys Arg

195

200

205

Lys

<210> 20

<211> 212

<212> PRT

<213> Homo sapiens

<400> 20

Thr Ile Phe Ile Leu Gly Asp Ala Gly Val Gly Lys Ser Met Leu Leu

1

5

10

15

Gln Arg Leu Gln Ser Leu Trp Ala Thr Gly Arg Leu Asp Ala Gly Val

20

25

30

Lys Phe Phe Phe His Phe Arg Cys Arg Met Phe Ser Cys Phe Lys Glu

35

40

45

Ser Asp Arg Leu Cys Leu Gln Asp Leu Leu Phe Lys His Tyr Cys Tyr

50

55

60

Pro Glu Arg Asp Pro Glu Glu Val Phe Ala Phe Leu Leu Arg Phe Pro

65

70

75

80

His Val Ala Leu Phe Thr Phe Asp Gly Leu Asp Glu Leu His Ser Asp

85

90

95

Leu Asp Leu Ser Arg Val Pro Asp Ser Ser Cys Pro Trp Glu Pro Ala

100

105

110

His Pro Leu Val Leu Leu Ala Asn Leu Leu Ser Gly Lys Leu Leu Lys

115

120

125

Gly Ala Ser Lys Leu Leu Thr Ala Arg Thr Gly Ile Glu Val Pro Arg

130

135

140

Gln Phe Leu Arg Lys Lys Val Leu Leu Arg Gly Phe Ser Pro Ser His

145

150

155

160

Leu Arg Ala Tyr Ala Arg Arg Met Phe Pro Glu Arg Ala Leu Gln Asp

165

170

175

Arg Leu Leu Ser Gln Leu Glu Ala Asn Pro Asn Leu Cys Ser Leu Cys

180

185

190

Ser Val Pro Leu Phe Cys Trp Ile Ile Phe Arg Cys Phe Gln His Phe

195

200

205

Arg Ala Ala Phe

210

<210> 21

<211> 219

<212> PRT

<213> Homo sapiens

<400> 21

Trp Val Thr Ile His Gly Met Ala Gly Cys Gly Lys Ser Val Leu Ala

1

5

10

15

Ala Glu Ala Val Arg Asp His Ser Leu Leu Glu Gly Cys Phe Pro Gly

20

25

30

Gly Val His Trp Val Ser Val Gly Lys Gln Asp Lys Ser Gly Leu Leu

35

40

45

Met Lys Leu Gln Asn Leu Cys Thr Arg Leu Asp Gln Asp Glu Ser Phe

50 55 60

Ser Gln Arg Leu Pro Leu Asn Ile Glu Glu Ala Lys Asp Arg Leu Arg

65 70 75 80

Ile Leu Met Leu Arg Lys His Pro Arg Ser Leu Leu Ile Leu Asp Asp

85 90 95

Val Trp Asp Ser Trp Val Leu Lys Ala Phe Asp Ser Gln Cys Gln Ile

100 105 110

Leu Leu Thr Thr Arg Asp Lys Ser Val Thr Asp Ser Val Met Gly Pro

115 120 125

Lys Tyr Val Val Pro Val Glu Ser Ser Leu Gly Lys Glu Lys Gly Leu

130 135 140

Glu Ile Leu Ser Leu Phe Val Asn Met Lys Lys Ala Asp Leu Pro Glu

145 150 155 160

Gln Ala His Ser Ile Ile Lys Glu Cys Lys Gly Ser Pro Leu Val Val

165 170 175

Ser Leu Ile Gly Ala Leu Leu Arg Asp Phe Pro Asn Arg Trp Glu Tyr

180 185 190

Tyr Leu Lys Gln Leu Gln Asn Lys Gln Phe Lys Arg Ile Arg Lys Ser

195 200 205

Ser Ser Tyr Asp Tyr Glu Ala Leu Asp Glu Ala

210 215

<210> 22

<211> 221

<212> PRT

<213> *Caenorhabditis elegans*

<400> 22

Phe Leu Phe Leu His Gly Arg Ala Gly Ser Gly Lys Ser Val Ile Ala

1 5 10 15

Ser Gln Ala Leu Ser Lys Ser Asp Gln Leu Ile Gly Ile Asn Tyr Asp

20 25 30

Ser Ile Val Trp Leu Lys Asp Ser Gly Thr Ala Pro Lys Ser Thr Phe

35 40 45

Asp Leu Phe Thr Asp Ile Leu Leu Met Leu Lys Ser Glu Asp Asp Leu

50 55 60

Leu Asn Phe Pro Ser Val Glu His Val Thr Ser Val Val Leu Lys Arg

65 70 75 80

Met Ile Cys Asn Ala Leu Ile Asp Arg Pro Asn Thr Leu Phe Val Phe

85 90 95

Asp Gln Val Val Gln Glu Glu Thr Ile Arg Trp Ala Gln Glu Leu Arg

100 105 110

Leu Arg Cys Leu Val Thr Thr Arg Asp Val Glu Ile Ser Asn Ala Ala

115 120 125

Ser Gln Thr Cys Glu Phe Ile Glu Val Thr Ser Leu Glu Ile Asp Glu

130 135 140

Cys Tyr Asp Phe Leu Glu Ala Tyr Gly Met Pro Met Pro Val Gly Glu

145 150 155 160

Lys Glu Glu Asp Val Leu Asn Lys Thr Ile Glu Leu Ser Ser Gly Asn

165 170 175

Pro Ala Thr Leu Met Met Phe Phe Lys Ser Cys Glu Pro Lys Thr Phe

180 185 190

Glu Lys Met Ala Gln Leu Asn Asn Lys Leu Glu Ser Arg Gly Leu Asx

195 200 205

Gly Asx Glu Cys Ile Thr Pro Tyr Ser Tyr Lys Ser Leu

210 215 220

<210> 23

<211> 91

<212> PRT

<213> Homo sapiens

<400> 23

Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln

1 5 10 15

Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His

20 25 30

Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn

35 40 45

Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp

50 55 60

Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His

65 70 75 80

Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys

85 90

<210> 24

<211> 91

<212> PRT

<213> Homo sapiens

<400> 24

Met Asp Ala Lys Ala Arg Asn Cys Leu Leu Gln His Arg Glu Ala Leu

1

5

10

15

Glu Lys Asp Ile Lys Thr Ser Tyr Ile Met Asp His Met Ile Ser Asp

20

25

30

Gly Phe Leu Thr Ile Ser Glu Glu Lys Val Arg Asn Glu Pro Thr

35

40

45

Gln Gln Gln Arg Ala Ala Met Leu Ile Lys Met Ile Leu Lys Lys Asp

50

55

60

Asn Asp Ser Tyr Val Ser Phe Tyr Asn Ala Leu Leu His Glu Gly Tyr

65

70

75

80

Lys Asp Leu Ala Ala Leu Leu His Asp Gly Ile

85

90

<210> 25

<211> 90

<212> PRT

<213> Caenorhabditis elegans

<400> 25

Glu Ser His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu

1

5

10

15

Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys

20 25 30

Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro

35 40 45

Thr Gln Pro Asp Lys Tyr Arg Lys Ile Leu Asp Leu Val Gln Ser Lys

50 55 60

Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala

65 70 75 80

Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu

85 90

<210> 26

<211> 88

<212> PRT

<213> Caenorhabditis elegans

<400> 26

Leu Cys Glu Ile Glu Cys Arg Ala Leu Ser Thr His Thr Arg Leu Ile

1 5 10 15

His Asp Phe Glu Pro Arg Asp Ala Leu Thr Tyr Leu Glu Gly Lys Asn

20 25 30

Ile Phe Thr Glu His Ser Glu Leu Ile Ser Lys Met Ser Thr Arg Leu

35

40

45

Glu Arg Ile Ala Asn Phe Leu Arg Ile Tyr Arg Arg Gln Ala Ser Glu

50

55

60

Leu Gly Pro Leu Ile Asp Phe Phe Asn Tyr Asn Asn Gln Ser His Leu

65

70

75

80

Ala Asp Phe Leu Glu Gln Tyr Ile

85

<210> 27

<211> 91

<212> PRT

<213> Caenorhabditis elegans

<400> 27

Met Arg Gln Asp Arg Arg Ser Leu Leu Glu Arg Asn Ile Met Met Phe

1

5

10

15

Ser Ser His Leu Lys Val Asp Glu Ile Leu Glu Val Leu Ile Ala Lys

20

25

30

Gln Val Leu Asn Ser Asp Asn Gly Asp Met Ile Asn Ser Cys Gly Thr

35

40

45

Val Arg Glu Lys Arg Arg Glu Ile Val Lys Ala Val Gln Arg Arg Gly

50 55 60

Asp Val Ala Phe Asp Ala Phe Tyr Asp Ala Leu Arg Ser Thr Gly His

65 70 75 80

Glu Gly Leu Ala Glu Val Leu Glu Pro Leu Ala

85 90

<210> 28

<211> 95

<212> PRT

<213> Homo sapiens

<400> 28

Met Glu Ala Arg Asp Lys Gln Val Leu Arg Ser Leu Arg Leu Glu Leu

1 5 10 15

Gly Ala Glu Val Leu Val Glu Gly Leu Val Leu Gln Tyr Leu Gln Tyr

20 25 30

Gln Glu Gly Ile Leu Thr Glu Asn His Ile Gln Glu Ile Asn Ala Gln

35 40 45

Thr Thr Gly Leu Arg Lys Thr Met Leu Leu Leu Asp Ile Leu Pro Ser

50 55 60

Arg Gly Pro Lys Ala Phe Asp Ile Phe Leu Asp Ser Leu Gln Glu Phe

65

70

75

80

Pro Trp Val Arg Glu Lys Leu Lys Lys Ala Arg Glu Glu Ala Met

85

90

95

<210> 29

<211> 91

<212> PRT

<213> Homo sapiens

<400> 29

Met His Pro His His Gln Glu Thr Leu Lys Lys Asn Arg Val Val Leu

1

5

10

15

Ala Lys Gln Leu Leu Leu Ser Glu Leu Leu Glu His Leu Leu Glu Lys

20

25

30

Gln Ile Ile Thr Leu Glu Met Arg Glu Leu Ile Gln Ala Lys Val Gly

35

40

45

Ser Phe Ser Gln Asn Val Glu Leu Leu Asn Leu Leu Pro Lys Arg Gly

50

55

60

Pro Gln Ala Phe Asp Ala Phe Cys Glu Ala Leu Arg Glu Thr Lys Gln

65

70

75

80

Gly His Leu Arg Asp Met Leu Leu Thr Thr Leu

85

90

<210> 30

<211> 93

<212> PRT

<213> Homo sapiens

<400> 30

Met Asp Glu Ala Asp Arg Arg Leu Leu Arg Arg Cys Arg Leu Arg Leu

1

5

10

15

Val Glu Glu Leu Gln Val Gln Leu Trp Asp Val Leu Leu Ser Arg

20

25

30

Glu Leu Phe Arg Pro His Met Ile Glu Asp Ile Gln Arg Ala Gly Ser

35

40

45

Gly Ser Arg Arg Asp Gln Ala Arg Gln Leu Asp Ile Asp Leu Glu Thr

50

55

60

Arg Gly Ser Gln Ala Leu Pro Leu Phe Ile Ser Cys Leu Glu Asp Thr

65

70

75

80

Gly Gln Asp Met Leu Ala Ser Phe Leu Arg Thr Asn Arg

85

90